What is claimed is:

1. A method for growing a doped glass film on a surface of a substrate comprising the step of:

reacting a dopant precursor compound of the formula $(R_3SiO)_jM(OR')_k$ to deposit a doped glass film on the surface of the substrate;

wherein M is Ti or Zr; R is an alkyl moiety; R′ is an alkyl moiety; j is 1, 2, 3 or 4; and k=4-j.

2. The method of claim 1, wherein R is selected from the group consisting of methyl, ethyl and propyl; and R′ is selected from the group consisting of methyl, ethyl, *n*-propyl, isopropyl, *n*-butyl, isobutyl, *t*-butyl and *s*-butyl.

3. The method of claim 1, wherein the reacting step occurs at the surface of the substrate.

4. The method of claim 3, wherein the reacting step is performed using a CVD process.

5. The method of claim 3, wherein the CVD process is an inside vapor deposition process or an outside vapor deposition process.

6. The method of claim 5 wherein the reacting step is performed using a PECVD process.

7. The method of claim 3 wherein the doped glass film is substantially condensed upon deposition.

8. The method of claim 1, wherein the reacting step does not occur at the surface of the substrate.

9. The method of claim 8, wherein the reacting step is performed using a flame hydrolysis deposition process.

10. The method of claim 9 wherein the doped glass film deposited in the reacting step is a layer of doped glass soot particles, and wherein the method further comprises the step of consolidating the soot particles to a homogeneous doped glass film by heat treatment.

11. The method of claim 1 wherein a silica precursor is reacted with the dopant precursor.

12. The method of claim 11, wherein the silica forming substance is selected from the group consisting of tetraethoxysilane, silane, disilane, tetramethylsilane, trimethylsilane, dimethylsilane, methylsilane, tetraaminosilane, triaminosilane, diaminosilane, aminosilane, tetrakis(diethylamino)silane, octamethylcyclotetrasiloxane, tetramethylcyclotetrasiloxane and diacetoxydi-*s*-butoxysilane.

13. The method of claim 1, wherein the organometallic compound is chosen from the group consisting of tetrakis(trimethylsiloxy)titanium, tetrakis(trimethylsiloxy)zirconium, tris(trimethylsiloxy)isopropoxytitanium, tris(trimethylsiloxy)isopropoxyzirconium, bis(trimethylsiloxy)diisopropoxytitanium, bis(trimethylsiloxy)diisopropoxyzirconium, (trimethylsiloxy)triisopropoxytitanium, and (trimethylsiloxy)triisopropoxyzirconium.

14. A planar optical device comprising a substrate and a doped glass film made by a method comprising the step of:

reacting a dopant precursor compound of the formula $(R_3SiO)_jM(OR')_k$ to deposit a doped glass film on the surface of the substrate;

wherein M is Ti or Zr; R is an alkyl moiety; R′ is an alkyl moiety; j is 1, 2, 3 or 4; and k=4-j.

15. The planar optical device of claim 14, wherein the index of refraction of the film is between 1.44 and 1.71.

16. The planar optical device of claim 14 wherein the reacting step is performed using a CVD process.

17. The planar optical device of claim 14 wherein the reacting step is performed using a FHD process.

18. An optical fiber made by a method comprising the step of:

reacting a dopant precursor compound of the formula $(R_3SiO)_jM(OR')_k$ to deposit a doped glass film on the surface of a substrate;

wherein M is Ti or Zr; R is an alkyl moiety; R′ is an alkyl moiety; j is 1, 2, 3 or 4; and k=4-j.

19. The optical fiber of claim 18 wherein the index of refraction of the doped glass film is between 1.44 and 1.71.

20. The optical fiber of claim 18 wherein the reacting step is performed using a CVD process.

21. The optical fiber of claim 18 wherein the reacting step is performed using a FHD process.